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EXPLORATIONS IN PRICE (UN)FAIRNESS

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Abstract

Consumers may use multiple reference points—including cost of goods, past prices, and competitive prices—to judge price fairness. Across a series of studies we show that consumers are inclined to overestimate profits, often to an extreme extent. We further demonstrate that prices are perceived to be unfair because consumers fail to take into account vendor costs, underestimate the effects of inflation, and attribute competitive price differences to profits. Potential corrective interventions by marketers—such as cueing costs, providing historical price information, and explaining price differences—were insufficient to eliminate unfairness perceptions. In addition, prices for goods were found to be stickier than prices for services and therefore were especially susceptible to these systematic perceptions of unfairness.

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EXPLORATIONS IN PRICE (UN)FAIRNESS

Fine restaurants gouge consumers, as evidenced by wine prices that are multiples of the going retail prices. Music on the Internet should be freely shared because the recording industry is rapacious in its pricing. Gasoline prices are too high because they are determined more by industry collusion than market forces. Pharmaceutical prices should be regulated due to the obscenely high profits made on prescription drugs and the relatively low prices paid in other countries for the same products. Such beliefs are not narrowly held, yet their accuracy is an issue of great consequence because the profitability of firms may be constrained by justifiable fear of consumer backlash to perceived exploitation (Blinder 1991; Kahneman, Knetsch, and Thaler 1986a; Piron and Fernandez 1995) and consumer price consciousness and satisfaction with competing vendors may be shaped by perceptions of price fairness (Sinha and Batra 1999).

Despite the apparent importance of perceived price fairness, research on the topic has been sparse and narrowly cast—with much of it centering on the principle of dual entitlement (Kahneman, Knetsch, and Thaler 1986b). The principle of dual entitlement argues that fairness perceptions are governed by the belief that firms are entitled to a reference profit in return for goods sold at a reference price. The consumer's entitlement is protected by the understanding that changes in the status quo cannot be made arbitrarily or merely for the sake of increasing the firm's profit, such as when prices are raised to take advantage of surplus demand or newly obtained monopoly power. The firm, on the other hand, is entitled to protect its profit when threatened by events such as rising costs.

The goal of the present research is to explore a variety of factors that contribute to consumer perceptions of price fairness. To frame the research, it is useful to note two aspects of the principle of dual entitlement and the evidence that supports it. First, fundamental to dual entitlement is the notion of a reference transaction. Fairness of a given transaction is a function of the characteristics of other transactions or potential transactions. Although many reference points seem possible, previous research has focused primarily on the price of a good at a previous time or during a preceding transaction. We examine the case of changing prices—albeit in a somewhat different way—in some of the experiments reported here; however, most of our experiments examine reference points that are pertinent to static environments as well. In so doing, we attempt to obtain greater access to consumer

understanding of profitability. Although dual entitlement argues that a vendor is entitled to a reference profit, participants in fairness experiments are generally provided with information about price. Explicit profit information typically is absent, and consumer inferences about a firm's profitability are rarely measured directly. The majority of experiments described here focus more on profit than price.

The second point of departure pertains to consumer attributions regarding profits and prices. Prior research has emphasized the vendor's motivation for altering the status quo, and therefore research on dual entitlement has been dominated by considerations of perceived equity, justice, and ethics (e.g., Bies, Tripp, and Neale 1993; Campbell 1999; Martins and Monroe 1994). The present research focuses on cognitive determinants of fairness by investigating consumer understanding of markets, the environment, and the vendor's constraints. Our guiding hypothesis is that such knowledge does not exist at high levels across the population. Given that consumer knowledge of explicit and unambiguous retail price information can be depressingly low (e.g., Dickson and Sawyer 1990), it seems reasonable to expect poor appreciation of closely guarded cost and profit information. Although knowledge of profits has not been extensively investigated, consumers are not highly satisfied with the price-profit relationship they perceive to exist among large firms (*Business Week*, 2000).

The following experiments are organized around three reference points that should affect fairness perceptions: past prices, comparison prices, and the firm's costs. We characterize these reference points as looking back (at past prices), looking across (at comparison prices), and looking inward (to costs). The latter results are then used to motivate a fourth set of studies that examine differences between products and services that might influence perceptions of fairness.

LOOKING BACK: PAST PRICES

We begin with the most straightforward and tractable reference point. As noted, Kahneman et al. (1986b) suggest that transaction history can provide one frame of reference for judging fairness. History is typically operationalized in terms of the price previously charged by a particular vendor. In the present studies, we focus on price changes at the

industry level by examining the effects of inflation. We expect that consumers will under- rather than over-estimate inflationary trends, which in turn will prompt inadequate savings behavior, perceptions of unfair prices, and over-estimation of seller profits.

Evidence suggests that consumers rely on past prices when judging the appropriateness of current prices and use current prices to forecast future prices (Briesch, Krishnamurthi, Mazumdar and Raj 1997; Jacobson and Obermiller 1990; *Wall Street Journal* 1997). Research also suggests that consumers have a poor understanding of inflation and that their estimates of its effects may be biased in the direction of underestimation (Bates and Gabor 1986; Katona 1975; Kemp 1987, 1991). Such results are consistent with psychophysical research showing that underestimation is common in trend extrapolation of time-series data (e.g., Wagenaar and Sagaria 1975), perhaps due to anchoring effects (cf. Harvey and Bolger 1996).

Pilot Study. A pilot study was conducted to establish the basic phenomenon in a pricing context. College students were asked to estimate the annual savings required to pay for the cost of a college education ten years in the future. Thirty-eight participants were given the current cost of an education, the inflation rate (manipulated as a between-subjects factor to be either 3% or 9%), and the interest rate accrued on savings (manipulated as a within-subject factor to be either 0% or equal to the inflation rate). As expected, participants underestimated the required savings rate. The proportion of required savings accrued at the end of ten years was 0.87 and 0.65 in the 3% and 9% conditions, respectively ($F(1, 36) = 6.08, p < .02$). Surprisingly, the savings interest rate did not moderate the tendency toward underestimation ($F < 1$). (Many participants apparently believed that saving ten percent of the current cost at the rate of inflation was sufficient.) It is noteworthy that these results were obtained in a context in which sensitivity to, and knowledge of, the problem of inflation should have been high.

The remaining experiments also use scenarios as stimuli to assess consumer beliefs and attitudes. Unless otherwise noted, participants were undergraduate students who received course credit in return for their participation. The numbers of participants are reported in tables that accompany each experiment.

Experiment 1: Recent versus Remote Prices

Participants in the pilot study were given a current price and were asked to extrapolate. In the present study, current and past prices were provided. Forecast accuracy should be higher if consumers have historical data from which to extrapolate. However, the precise nature of the historical data should have an influence as well. Historical data points that best illustrate the shape of the inflation curve should be most helpful (cf. Wagenaar and Timmers 1979). Assuming a constant inflation rate, remote data best reveal the exponential nature of inflation. However, it seems reasonable to assume that in everyday contexts the most memorable and salient prices are those that have been observed most recently.

Method. Participants were asked to predict the cost of a college education ten years hence. They were given the current price of a college education (\$99,860) and historical price information that reflected a constant inflation rate (manipulated as a between-subjects factor to be either 3% or 9%). The type of historical price information provided to participants was manipulated as a between-subjects factor at three levels: “remote” data (from ten years ago only), “recent” data (from the previous three years), or both “recent and remote” data. The data were computed based on the stated current price and rate of inflation.

Results. An analysis was conducted based on the percentage deviations from the correct response. A two-way ANOVA indicated a significant main effect of inflation rate ($F(1, 162) = 102.98, p < .001$), a significant main effect of type of data ($F(2, 162) = 3.27, p = .04$), and a non-significant interaction ($F(2, 162) = 1.41, p = .25$). As indicated in table 1, prices were uniformly underestimated and were especially inaccurate at the higher inflation rate. Moreover, estimates were least accurate when made in the presence of recent data. A planned contrast of estimates based on “remote” data to “recent” data was significant ($F(1, 162) = 6.55, p = .01$). Thus, recent historical price information exacerbates underestimation of inflationary effects.

TABLE 1: EDUCATION COST FORECAST (AS A PROPORTION OF TRUE VALUE)

Type of data	Inflation rate = 3%	Inflation rate = 9%
Remote	0.97 (0.07) $n = 29$	0.81 (0.15) $n = 28$
Recent	0.95 (0.07) $n = 26$	0.71 (0.18) $n = 28$
Recent and remote	0.95 (0.09) $n = 29$	0.78 (0.13) $n = 28$

Note: Bold estimates are significantly less than 1.00 (all $p < .01$), indicating underestimation.

It is not clear to us that consumers appreciate the benefits of adopting a longer time horizon. We investigated this possibility in a follow-up study. Participants were asked to predict the annual cost of college ten years hence based on a stated current cost and a steady-state inflation rate for the previous ten years. Before doing so, however, they were given the opportunity to view a single price from any of the preceding ten years. Our objective was to assess participants' sensitivity to the salutary effect of adopting a long time horizon (i.e., to search remote prices). Results produced a search distribution that was largely bimodal. Of the 85 participants, 42.4% searched for price data from 1-3 years in the past, with the majority searching only one year back; an identical percentage searched 8-10 years in the past, with the majority searching 10 years back. Insofar as recent data harm predictive accuracy, the majority of participants in this study can be said to search suboptimally.

Taken together, these studies demonstrate the potential for "sticker shock" and potentially devastating savings behavior. However, they fail to provide direct evidence regarding price dissatisfaction or perceptions of unfairness. In the next experiment we examine the case in which consumers are considering a current purchase but have access to previous price information and must assess the fairness of the current price.

Experiment 2: Current Prices and Perceived Fairness

Method. Participants were presented with a current and historical price of a polo shirt and were asked to determine whether the increase in price was fair—given that the historical price was fair. The experimental design consisted of three experimental groups (three levels of current price information) and a control group (no current price information). The current

price of the shirt (X) was manipulated at three levels (\$34.59, \$39.49, or \$44.79), where the middle price of \$39.49 represented the historical fair price adjusted for inflation. After a short introduction, participants read the following:

... Consider the case of a particular brand of polo shirt sold by a particular department store retailer. ... Seven years ago ... the retailer sold this brand of polo shirt to consumers at a fair price of \$23. Since then, inflation and quality have forced the manufacturer to raise its price each year. Simply to cover these costs, the retailer would need to raise its retail price each year by 8% over each previous year. If you go to the store today, the price you will see on this polo shirt is $\$X$. Based on your first impression, please check one of the three responses below (a, b, or c) and answer the remainder of the question if necessary.

- a) I think that the retailer has absorbed some of the manufacturer's price increase. In order to maintain the same fair profit as in 1989, the retailer should raise the price from $\$X$ to \$ _____.
- b) I think the retailer has neither absorbed any of the manufacturer's price increase nor tried to make extra profit. Thus, $\$X$ is an appropriate price to charge.
- c) I think the retailer has added to the manufacturer's price increase and is trying to make additional profit. In order to maintain the same fair profit as in 1989, the retailer should lower the price from $\$X$ to \$ _____.

A fourth (control) group of participants was not given a current price but instead was asked the open-ended question "what do you think would be a fair price for the retailer to charge consumers for this polo shirt today?"

Results. A categorical analysis of the results indicates a propensity to underestimate the fair price (see table 2). Among participants provided with a specific current price, more underestimated inflation (32.3%) than overestimated inflation (15.6%; $\chi^2(2) = 34.21, p < .001$). Similarly, among participants who were asked only for an open-ended response, significantly more (61.9%) underestimated than overestimated the fair price (25.4%; $\chi^2(2) =$

21.27, $p < .001$). Unsurprisingly, participants' responses in the experimental groups were influenced by the current price given ($\chi^2(4) = 32.47, p < .001$). When a low current price was given, participants were more likely to underestimate inflation than when a high current price was given. Thus, the current retail price appeared to act as an anchor that biased fair price estimates toward it. As a result, fair prices estimated by participants increased with the current price ($F(2, 90) = 20.68, p < .001$).¹ This response bias is important because it suggests that, although participants underestimated the effects of inflation when extrapolating from past prices, their fair price estimates were biased by the current price information (i.e., the going rate).

Moreover, the anchoring effect of the current price was clearly insufficient to completely compensate for perceptions of unfairness or gouging. Even in a context in which the current price was the fair price, more participants underestimated than overestimated inflation (19 versus 5 out of 63 participants) and by a considerable amount ($M = \$32.36$ vs. a true fair price of $\$39.42$; $t(18) = -7.31, p < .001$). Somewhat surprising is that even when participants were provided with a very high current price anchor ($\$44.79$) they insufficiently adjusted for inflationary effects. That is, the observed estimate ($M = \$36.18$) is significantly lower than the true value ($t(36) = -4.57, p < .001$). Thus, perceptions of price *unfairness* (i.e., that retailers are “gouging”) may be particularly susceptible to the effects of underestimating inflation.

Discussion

Taken together, the results suggest that consumers are poor assessors of the effects of inflation on prices. Future prices that are based on present prices are underestimated, as is the appropriateness of current prices given a historical price. In some ways, the results reported here are conservative. The stimuli were explicit, and therefore neither memory for past prices nor estimates of the inflation rate were subject to self-serving distortion. In addition, the stimulus domains were realistic and relevant, and the participants possessed computational abilities that are likely to be above the average of the general population. We speculate that

¹ This analysis includes only participants who judged that the retailer was absorbing or gouging (since only these participants were asked to provide their own estimate of fair price). The analysis also revealed a main effect of choice (absorbing or gouging; $F(1, 90) = 104.73, p < .001$), as expected.

in most environments in which inflation exists above nominal levels, sticker shock and perceptions of unfairness should be anticipated.

TABLE 2: PRICE FAIRNESS AS A FUNCTION OF INFLATION AND CURRENT PRICE

Current price	Median and range	Absorbing	Correct price	Gouging
\$34.59 (below fair price)	35.88 (24.84-50.00)	39.67 (4.23) <i>n</i> = 19	34.59 <i>n</i> = 27	29.28 (3.61) <i>n</i> = 14
\$39.49 (correct fair price)	35.00 (25.00-45.00)	43.31 (1.56) <i>n</i> = 5	39.49 <i>n</i> = 39	32.36 (4.21) <i>n</i> = 19
\$44.79 (above fair price)	36.99 (25.00-56.64)	51.21 (5.32) <i>n</i> = 3	44.79 <i>n</i> = 21	36.18 (4.31) <i>n</i> = 39
Open-ended	37.00 (25.00-65.00)	38.54 (7.47) <i>n</i> = 63 (39 underestimated, 16 over-estimated)		

Note 1: light shading = true response; dark shading = underestimated inflation; no shading = overestimated inflation.

Note 2: Mean price estimates in **bold** are significantly different from the correct value (all $p < .05$).

LOOKING ACROSS: COMPARISON PRICES

Past prices are neither the only nor dominant influence on price perceptions (Mayhew and Winer 1992; Rajendran and Tellis 1994). As Kahneman et al. (1986b) note, prevailing competitive prices can serve as the reference transaction, especially when a transaction history with a particular vendor does not exist. In commodity markets this “going rate” keeps prices low because the vendor has little justification for exceeding it. Evidence of lower prices in the marketplace for the same good can engender feelings of unfairness that result in customer defection (e.g., Frey and Pommerehne 1993; Lichtenstein and Bearden 1989).

In contrast, the issue of price fairness in noncommodity markets is not often addressed. The principle of dual entitlement suggests that price differences can be justified by cost differences, and consumer research suggests that price differences frequently are

interpreted in terms of quality differences (which, in turn, presumably correspond to cost differences). Nonetheless, direct investigation of perceived fairness is rare, and consumer research related to price dispersion often focuses on quality attributions. We do not question the reasonableness of price-quality inferences, particularly in competitive markets. However, in the larger environment, many other factors contribute to price and profit. In this and the following section we examine consumer understanding of, and reaction to, these factors. In most instances we hold product quality constant while assessing (1) attributions consumers make regarding the prices and profits of competing vendors who differ on non-product dimensions or (2) reactions to explicit price and profit levels associated with vendors who differ on these dimensions.

Experiment 3: Profit Versus Cost Attributions

Competing retail stores may sell the same brand but offer different levels of service or convenience, and these different retail tactics may entail different costs or margin requirements. The present experiment investigates the effect of such store differences on judgments of price fairness. By manipulating the explicitness of differences in retail tactics, we assessed whether consumers spontaneously acknowledge store differences. Prior research suggests that consumers are somewhat sensitive to store differences (Grewal and Baker 1994); to our knowledge, however, the extent to which the benefits offered by different stores is perceived to offset price differences has not been examined.

Method. The experiment used a 2 (Store Type) x 2 (Benefit Cue) x 2 (Product Replicate) mixed design. Store type was manipulated on a within-subject basis at two levels: inexpensive versus expensive store price image. There were two product replicates manipulated on a between-subjects basis: a pint of ice cream (sold in a grocery or convenience store) or clothing (sold in a discount or department store). Thus, participants were asked for reactions concerning a pint of ice cream at a grocery store and convenience store or an article of clothing at a discount and a department store. The costs/benefits offered by the competing stores (e.g., location, atmosphere, service) were either cued or not cued, also between-subjects. After viewing the stimulus, participants were asked to estimate the

actual and fair prices and the profit margins of each store. For example, the scenario from the clothing condition, with the benefit cue shown in [brackets], reads as follows:

The retail industry is composed of many types of stores. Even for stores that sell similar merchandise, large differences exist among competing retailers. Without mentioning specific examples, most shoppers can name several department stores. There are also many discount stores that may sell similar clothing (and often sell the same brands). [Department stores tend to offer greater selection, more service, and a more pleasant in-store environment.] Imagine an identical item sold at both types of stores. For example, this item may be a shirt or blouse or slacks. The same manufacturer sells the item to both stores for an identical price. In this instance, imagine that the price is \$25. On the lines below, please estimate the following:

- 1) How much will each store charge the consumer for the item?
- 2) What do you feel would be a fair price for each store to charge?
- 3) For each dollar that the store takes in at its true prices, how much is left over in profit after each store has covered all of its costs?

Results. Table 3 indicates an identical pattern of results for each stimulus replicate (analyzed separately due to heterogeneity of variance in price estimates). As expected, actual price estimates were higher for the expensive store than for the inexpensive store ($F(1, 21) = 21.15, p < .001$, for ice cream; $F(1, 20) = 100.46, p < .001$, for clothing). Similarly, estimates of the fair price were higher for the expensive store than for the inexpensive store ($F(1, 21) = 8.10, p < .01$, for ice cream; $F(1, 20) = 24.53, p < .001$, for clothing). There were no significant effects of the benefit cue on actual or fair price estimates.² The higher estimated actual and fair prices for the expensive store suggest that participants spontaneously acknowledged differences between stores. We surmise that the within-subject manipulation of store comparison made the store differences so salient that the cue had no incremental effect. In experiments reported later, cost cues exerted a much larger influence.

² For completeness, two (marginal) exceptions are reported. For clothing, neither the benefit cue nor its interaction with store type were significant for fair price and actual price estimates (all $F < 1$). For ice cream, the benefit cue marginally reduced actual price ($F(1, 21) = 3.00, p = .10$; interaction $F < 1$) and fair price estimates ($F(1, 21) = 3.49, p = .08$; interaction $F(1, 21) = 1.50, p = .23$).

More interesting are the profit-related measures. Although participants conceded higher prices to the expensive stores, they nonetheless thought that the prices at the expensive stores were less fair. The unfair surcharge (actual price minus fair price) was greater for the expensive store than for the inexpensive store ($F(1, 21) = 20.61, p < .001$, for ice cream; $F(1, 20) = 45.67, p < .001$, for clothing). Similarly, profit estimates (per dollar of sales) were higher for the expensive store ($F(1, 16) = 41.05, p < .001$, for ice cream; $F(1, 18) = 23.29, p < .001$, for clothing). The benefit cue again had no effect on either surcharge or profit.³

TABLE 3: STORE PRICE IMAGE EFFECTS

Product	Store price image	N	Fair price	Actual price	Profit	Surcharge (actual minus fair price)
Ice cream	Grocery	23	3.30	3.64	0.22 [‡]	0.35
	(inexpensive)		(0.56)	(0.60)	(0.15)	(0.32)
Ice cream	Convenience	23	3.46	4.13	0.36 [‡]	0.66
	(expensive)		(0.76)	(0.86)	(0.19)	(0.34)
Clothing	Discount	22	32.89	35.14	0.19 [†]	2.25
	(inexpensive)		(6.14)	(5.84)	(0.10)	(4.01)
Ice cream	Department	22	35.89	44.13	0.32 [†]	8.25
	(expensive)		(6.41)	(8.42)	(0.17)	(4.29)

† missing profit data from 2 participants. ‡ missing profit data from 5 participants.

Overall, participants expected prices to differ by store and judged part of this price difference as fair, presumably due to store cost differences inasmuch as the cost of good sold (CGS) was held constant. Cueing the benefits of each store had no incremental effect. From an attribution standpoint, it appears that respondents attributed the expected price differential between the expensive and inexpensive store more to profit than to cost. That is, when

³ Most important, the benefit cue had no effect on profit estimates for clothing or ice cream (all $F < 1$). The benefit cue also had no effect on the surcharge for clothing ($F < 1$; interaction $F(1, 20) = 2.37, p = .14$) or ice cream (all $F < 1$).

accounting for the expected difference in actual price, the estimated profit differences exceeded the estimated cost differences by a factor of two (ice cream) to three (clothing). In terms of an attribution hierarchy, profit attributions dominated store cost attributions.

The absolute magnitude of the per-dollar profit estimates also is notable. A result that is observed repeatedly in subsequent experiments is that consumers are naïve with respect to retail profitability and the opportunity to generate high profit margins in competitive marketplaces. Given the high margins estimated by these participants, skepticism regarding the fairness of retail prices is natural.

Experiment 4: Profit, Cost, and Quality Attributions

In the preceding experiment, price difference attributions were constrained to profit and “service” costs, given that the competing stores offered the same brands. In the present experiment we allowed participants to make quality attributions as well by manipulating whether the brands in the competing stores were identical. As noted, prior research suggests that quality is the default attribution when different brands possess different prices. In a retail context, quality competes with profit and other costs as possible attributions.

Method. The experiment employed a 2 (Department Store versus Discount Store) x 2 (Same versus Different Product Brand) x 2 (Benefit Cue) mixed design. Participants were asked to judge price, CGS, other costs, and profits for a polo shirt at department and discount stores. Participants were told that the polo shirt was either the same or a different brand at each store; some participants were also cued to think about store differences (including other cost differences). The stimulus frame was as follows:

You are out shopping one day for a polo shirt. You visit a department store. While there, you see a polo shirt. Later the same day, you visit a discount store. [While there, you see the exact same polo shirt (same brand, same style, same fabric and color, etc.). / While there, you see another polo shirt (a different brand).] [You also notice that the department store has more selection and service, as well as a more pleasant in-store environment

(compared to the discount store). / omit] For each store, please estimate the following:

	Department Store		Discount Store	
What is the price you pay for the polo shirt in each store?	_____		_____	
a) How much of the price you pay does the store use to pay the manufacturer for the item?	_____		_____	
b) How much of the price you pay goes to cover other costs that the store has?	_____		_____	
c) How much of the price you pay is left over as profit made by the store on this item?	_____		_____	
	<i>Very Unfair</i>		<i>Very Fair</i>	<i>Very Fair</i>
			<i>Unfair</i>	<i>Fair</i>
How fair do you think the store's price is?	1 2 3 4 5 6 7		1 2 3 4 5 6 7	

Results. For simplicity of presentation, table 4 presents the mean difference scores between the department and discount store for each dependent measure. The results are collapsed across benefit cue because benefit cue again exerted no effect.⁴ As expected, estimates for the total price of the polo shirt were higher in the department store than the discount store ($F(1, 92) = 406.6, p < .001$) but did not vary by condition. Also as expected, estimates for CGS depended on the store ($F(1, 92) = 65.53, p < .001$) and its interaction with brand ($F(1, 92) = 7.08, p < .01$). CGS estimates were larger for department than discount stores, especially when the stores carried different brands. Regardless of whether the stores carried identical or different brands, estimates for other costs were higher for department

⁴ A lone (marginal) exception was that the fairness advantage of discount stores over department stores was reduced when store differences were cued ($F(1, 90) = 3.68, p = .06$).

stores than discount stores ($F(1, 92) = 83.7, p < .001$), as were profit estimates ($F(1, 92) = 164.3, p < .001$) in absolute dollars. Further, the differences in perceived fairness corresponded to differences in perceived profits: higher prices and profits were associated with lower fairness.

TABLE 4: COST AND PROFIT ATTRIBUTIONS
(DEPARTMENT MINUS DISCOUNT STORE)

Brand cue	N	CGS	Other	Profit	Price	%Profit	Fairness
Different	51	6.97 (6.60)	4.45 (4.51)	9.07 (5.68)	20.49 (8.95)	2.10 (12.02)	-1.84 (1.60)
Same	45	3.47 (5.92)	4.36 (4.82)	11.56 (9.68)	19.38 (10.22)	8.13 (12.09)	-2.19 (1.59)

Note: **Bold** indicates significant non-zero difference scores ($p < .05$)

In terms of the attribution hierarchy, the results are straightforward. When stores carry the same brand (as in experiment 3), the large expected price difference between the department and discount stores was attributed first to profit and then to other costs, with again an almost three times greater allocation to profit. The directional result was expected, inasmuch as CGS was held constant. When stores carried different brands and a quality attribution was possible, profit again was dominant. However, quality (CGS) dominated other costs. These results are noteworthy in light of our discussion regarding prior research on fairness. It is apparent that consumers readily make price-quality inferences. However, the overall situation may be more nuanced in ways that have significant implications for perceived fairness. Although participants attributed a portion of the price difference to the cost of quality, they nonetheless attributed an even greater portion to differences in the profits of the competing vendors.

Finally, an interesting effect is observed when profit is converted to a percentage of price. Overall, percentage profits were quite large (around 40%)—and larger in the department store than discount store ($F(1, 92) = 16.95, p < .001$). Moreover, this difference in percentage profit was greater for same brands than different brands ($F(1, 92) = 5.83, p = .02$). Indeed, when quality attributions were possible with different brands, the department

and discount stores were viewed as generating the same percentage profit ($t(50) = 1.25, p > .10$). This result is noteworthy when considered in the context of the fairness ratings. Fairness was viewed as uniformly higher at the discount store ($F(1, 90) = 153.7, p < .001$). Thus, when quality attributions were possible, it seems that judgments were driven more by the absolute profit differences (almost double for department versus discount stores) than the percentage profit differences (which were negligible). The dual entitlement principle proposes that sellers are entitled to a reference profit but is silent with respect to whether consumers make finer distinctions concerning absolute versus percentage profits when assessing fairness. A failure to relate fairness to percentage profit differences could be due to several factors, including the use of a naïve cost-plus-absolute-profit rule or a naïve understanding of retail accounting that must incorporate variables such as inventory turnover. The next several experiments pursue these possibilities.

Experiment 5: Not All Equal Profits Are Equally Fair

In experiments 3 and 4, the profit question was open-ended to allow respondents the opportunity to express their beliefs and make attributions. In the present studies, respondents were informed that the competing retailers generated identical net profit margins but arrived at those profits in different ways that were largely dictated by forces beyond the retailers' control. The question is whether consumers take into account the retailers' constraints when judging fairness. Two pilot studies were first run to gauge consumer sentiment.

Pilot Studies. These experiments examined whether consumers are influenced by the vendors' ability to generate profit from high margins versus high inventory turnover. Two stores that differed in turnover and margin were described. In the first pilot, the presence of a product-quality rationale for the difference was manipulated. Specifically, participants read the following information. The quality explanation provided to some participants is included in [brackets.]

We are interested in your views on store finances. As you know, stores make a profit from selling goods. Overall profit is a function of many factors, including “stockturn” and “markon.” “Stockturn” is the number of times the

store's inventory is sold in a year (i.e., the turnover rate). "Markon" is the percentage amount of the retail price on an item over and above cost (i.e., the markup or gross margin). Some stores have relatively low stockturn and a high markon. In contrast, other stores have relatively high stockturn but a lower markon. Many factors determine stockturn and markon. Markon is often based on traditional store practice. A store may use a standard markup on all goods, with only a few exceptions. Stockturn is influenced by the nature of the goods sold by the store. [For example, some stores sell higher quality goods. These goods cost more to manufacture so they are priced higher. Higher-priced goods tend to sell less quickly. Hence, stockturn is lower and stores charge a higher markon to make their profit. On the other hand, other stores sell lower quality goods. These goods cost less, are priced lower, and tend to sell more quickly. Hence stockturn is higher and stores charge a lower markon to make their profit.]

Participants were asked to write down examples of stores with high and low stockturn in the same category. They were then presented with information about two stores' finances. Store A was described as having a stockturn of 2 and a markon of 50% and Store B as having a stock-turn of 5 and a markon of 20%. The net profit margin at both stores was stated to be 5%. Based on this information, participants then rated the fairness of each store on a 7-point scale.

As the results in table 5 indicate, fairness ratings were significantly different across stores ($F(1, 41) = 10.09, p < .001$). Providing a quality explanation had no effect ($F < 1$). Thus, despite equal and low net margins and a reasonable justification for margin differences, respondents gave higher fairness ratings to the store (B) with higher stockturn and lower markon.

TABLE 5: FAIRNESS RATINGS AS A FUNCTION OF STORE TURNOVER
PRACTICES

Store	Stock- turn	Mark- on	Net profit margin	Fairness rating	
				Quality explanation <i>N</i> = 22	No quality explanation <i>N</i> = 21
Store A	2	50%	5%	4.00 (1.48)	4.24 (1.97)
Store B	5	20%	5%	5.23 (0.92)	5.05 (1.60)

It could be argued that although participants recognized the quality differences, the markon difference was too large to justify for goods from the same product class. We conducted a second study in which the goods in the competing stores were left unspecified but were implied as coming from different product classes (i.e., durable versus nondurable) rather than quality. As before, respondents wrote down examples of stores with high and low stockturn and then were presented with information about two stores' finances in which the stockturns and markons were unchanged from the first pilot study. Margin was described as identical at each store but the exact level was either unspecified or set at the low level of 3.5%.

Results showed that the difference in perceived fairness between stores was again significant ($F(1, 72) = 22.37, p < .001$) and that explicitly stating net margin had no effect ($F < 1$). Higher fairness was ascribed to the store with higher stockturn and lower markon (4.85 versus 3.76). Inspection of protocols showed that the majority of respondents (79%) instantiated the stores in terms of different product categories (e.g., grocery versus furniture store). Even when restricted to these respondents, the low stockturn store was perceived as less fair ($t(52) = 4.05, p < .001$).

These pilot studies indicate that consumers take into account how firms' profits are made when judging price fairness. Consumers judged stores with higher markups and lower turnover as less fair, even when store turnover arose from factors beyond store control (e.g., nature of the goods sold) and net profit was explicitly low. In the main experiment that follows we examine other sources of price variation across stores, including the firm's

marketing strategies and pricing constraints. Some strategies are primarily determined endogenously. For example, Nike has chosen to follow a promotion-heavy strategy. In a similar vein, some retailers incur higher costs (e.g., by providing better service or carrying riskier inventory) that are passed on to customers in the form of higher prices. At the extreme, stores may choose to follow a margin versus volume strategy and price accordingly. Other strategies may be determined primarily by exogenous factors. For example, firms with a narrow customer base due to geography will suffer lower turnover and therefore must charge higher prices to make a profit.

We presented price differences between two stores and attributed these differences to various factors (i.e., product quality, non-CGS costs, customer base, inventory risk, and margin/volume strategy). Based on the pilot results, we hypothesized that price differences not exclusively attributable to quality (such as other costs and risk) would be seen as unfair. We also expected that prices based on an intentional high-margin strategy would be judged as less fair than prices based on unavoidable constraints faced by the firm. The more interesting but less predictable result concerns the precise way in which these latter firms are viewed.

Method. Participants were given prices for blouses at two stores. At Store A, the blouse was priced at \$29.95; at store B, the blouse was priced at \$39.95. Overall costs and net profit were held constant. Respondents were then given an explanation (manipulated at 5 levels) for the price difference and asked to assess the fair price of the blouse at each store. In all conditions, the explanation began as follows:

We are interested in your views, as a consumer, on the fairness of store finances and pricing. As you know, stores make a profit from selling goods and overall profit is a function of many factors. Consider the case of two stores.

In the *quality* explanation condition, the scenario attributed the higher price at Store B to quality. It controlled for other store differences by equating service and other costs, overall revenue, and net profit as follows:

Both stores have the same level of service and other costs, the same overall sales revenue, and the same net profit. Both stores sell blouses. Store A charges \$29.95; Store B charges \$39.95. Store A charges a lower price because it carries a lower quality blouse. The store pays less to the manufacturer for the blouse; as a result, the same markup leads to a lower price than in Store B. Store B carries a higher quality blouse. The store pays the manufacturer more for this blouse; with the same markup as Store A, its prices are higher.

In the *other cost* condition, the scenario attributed the higher price at Store B to other costs. It controlled for other store differences by equating quality, sales revenue, and net profit as follows:

Both stores have the same overall sales revenue and the same net profit. Both stores sell the exact same blouse (same brand, same quality, same style, same cost paid to the manufacturer). Store A charges \$29.95; Store B charges \$39.95. Store A charges a lower price because its other costs (service, admin, rent, etc.) are lower. (For example, it offers less service, rent is lower in its location, etc.) Store B charges a higher price because it has to cover higher other costs. (For example, it offers better service, has higher rental costs in its location, etc.). As a result, Store B has to charge a higher price to make the same profit as Store A.

In the *risk* condition, the scenario attributed the higher price at Store B to risky inventory. It controlled for other store differences by equating service, quality, sales revenue, and net profit as follows:

Both stores have the same level of service, the same costs and overall sales revenue, and the same net profit. Both stores sell blouses of the same quality and pay the same cost to their manufacturers. Store A charges \$29.95; Store B charges \$39.95. Store A charges a lower price because it faces less risk that it will not be able to sell its inventory. Store B carries riskier inventory. (For example, its blouses may be seasonal or very fashion-forward or from

new/unknown designers or manufacturers.) As a result, it faces more risk that it will not be able to sell its inventory and will have to dump blouses at the end of the season. Store B covers this risk by charging higher prices for the same quality goods than Store A.

In the *customer base* condition, the scenario attributed the higher price at Store B to a narrow customer base due to geography. It controlled for other store differences by equating service, quality, sales revenue and net profit as follows:

Both stores have the same level of service, the same costs and overall sales revenue, and the same net profit. Both stores sell the exact same blouse (same brand, same quality, same style). Store A charges \$29.95; Store B charges \$39.95. Store A charges a lower price because it has a broad customer base due to its geography. The broad customer base results in higher turnover so Store A can charge lower prices to make the same profit as Store B. Store B, with its narrow customer base due to its geography, has lower turnover so must charge higher prices to make the same profit.

In the *margin/volume strategy* condition, the scenario attributed the price difference to a high margin strategy at Store B and a volume strategy at Store A. It controlled for other store differences by equating service, quality, sales revenue and net profit as follows:

Both stores have the same level of service, the same costs and overall sales revenue, and the same net profit. Both stores sell the exact same blouse (same brand, same quality, same style). Store A charges \$29.95; Store B charges \$39.95. Store A charges a lower price because it follows a “volume strategy”. It charges a lower price, which increases sales; with a lower margin per sale but higher volume of sales, it makes the same profit as Store B. Store B, following a “margin strategy”, charges a higher price; its lower volume of sales is offset by a higher margin in order to make the same profit.

Following presentation of the scenario, participants were shown a table summarizing the main points of the scenario and asked to generate an estimate of the fair price at each store as follows (shown here for the quality condition only):

Please take a moment to consider these stores. What do you think is a fair price at each store? (Enter a \$ amount for each store.)

	Quality	Net Profit on Overall Revenue*	Price Charged For Blouse	Fair Price
Store A	Lower	5%	\$29.95	\$ _____
Store B	Higher	5%	\$39.95	\$ _____

* Note: Both stores have the same revenue so make the same profit whether expressed in \$ or %.

Results. An ANOVA conducted on the differences in fair-price estimates revealed a significant omnibus effect of condition ($F(4, 92) = 6.92, p < .001$). Recall that the store prices differed by \$10; if participants accepted the explanation for the price difference, their estimates would also differ by \$10. As the pattern of means in table 6 reveals, a quality explanation for price differences led to fair prices that differed by approximately \$10 ($t(18) = 1.12, p = .14$). In all other conditions, the fair price differences were less than \$10 (all p 's $< .01$); that is, participants did not fully accept the non-quality explanations provided for store price differences. As expected, a planned contrast of the quality condition against the other cost, risk and customer base conditions was significant ($F(1, 92) = 18.41, p < .001$), indicating that the latter explanations were less acceptable than a quality explanation. In addition, a planned contrast of the margin/volume strategy condition to the non-quality conditions indicates that non-quality explanations are as unacceptable as an intentional margin strategy explanation ($F(1, 92) = 2.37, p = .13$).

TABLE 6: STORE FAIRNESS DIFFERENCES
AS A FUNCTION OF MARKETING STRATEGY EXPLANATION

Marketing Strategy	N	Fair Price Difference (Store B minus Store A)
Quality	19	10.79 (3.08) $t(18) = 1.12, p = .14$
Customer Base	20	6.95 (4.25) $t(19) = 3.21, p = .002$
Risk	19	5.79 (4.29) $t(18) = 4.28, p < .001$
Other Costs	19	5.00 (5.14) $t(18) = 4.24, p < .001$
Margin/Volume Strategy	20	4.20 (4.47) $t(19) = 5.80, p < .001$

Note: Means in **bold** are significantly different from \$10.

As expected, consumers were willing to grant a higher price in return for commensurate quality. Also, consumers were least willing to grant a higher price driven by the firm's optional and endogenously driven strategy to make profits via high margins rather than high volume. Perhaps most interesting are the remaining conditions, which gravitated more toward the latter than the former. Even when a higher price resulted from factors beyond the firm's control, consumers were unwilling to grant the entire amount required by the firm to compete. For example, participants in the Risk condition were unwilling to accept the same high price as participants in the Quality condition even though (a) the overall profits at the high priced store in each condition were equal, (b) the overall profits at the high priced store in each condition were equal to each store's lower priced competitor, (c) the absolute profit margins were low, and (d) the reason for the higher price was beyond the firm's control. Inventory risk at a fashion store is a "cost of doing business."

Taken together, these experiments suggest that consumers may take into account *how* stores obtain their profit when judging fairness. The dual entitlement principle states that sellers are entitled to a reference profit, but it does not speak to how firms may obtain that profit. Apparently, not all equal profits are equally fair.

LOOKING INWARD: INTERNAL COSTS

Aside from reference transactions, the perceived fairness of a price is likely to be influenced by the perceived cost of a good to the vendor (cf. Thaler 1985). Experiments 3 and 4 showed that, although participants were not indifferent to the costs incurred by different types of retailers, estimated profits of retailers were quite high and estimated non-CGS costs were relatively low. Experiment 5 showed that participants were more inclined to accept quality or CGS explanations than other explanations when comparing retail prices. Insofar as CGS is the most salient cost, other costs may be ignored and overall profits may be overestimated. Such an outcome would hold even in the presence of reference transactions once the effect of price change is removed. That is, even when a price change is deemed fair, the absolute price may nonetheless be perceived as too high given the perceived profits of the firm. The results reported by Kahneman et al. (1986b) suggest that consumers are sensitive to unchanging costs in the face of a price increase. An obvious question concerns the extent to which costs—and different categories of costs—are considered spontaneously in judging prices.

Experiment 6: Cueing a Salient Cost

An exploratory study examined the effect of cueing a seemingly salient cue on profit estimates for retail stores. Specifically, we asked participants to estimate CGS, other costs, and profit while manipulating whether labor was identified as a separate cost category.

Method. Participants were presented with the name of a retail store and were asked to estimate various cost categories. A between-subjects store replicate manipulation was used for generalizability. The replicates were a department store (Burdines), a discount store (Walmart), a specialty store (Limited), and a grocery store (Publix), all of which were local to the participant population. A sample stimulus scenario using the Publix replicate in the cued condition is reproduced below. The cueing manipulation consisted of isolating labor as a separate line item in the cued condition and omitting any mention of labor in the uncued condition.

We are interested in your impressions of finances at a retail store. The store is Publix. We would like your estimate of the proportion of Publix's revenue that goes to cover cost of goods sold, the proportion that goes to cover labor costs, the proportion that goes to cover all remaining costs, and how much is left as Publix's profit (before taxes). (Cost of goods sold refers to the money the store pays to its suppliers for the goods it sells. Labor refers to the money the store spends to pay its employees.) On the lines below you see a simplified version of a Publix income statement. Consider one dollar of revenue. What is your estimate of how much of each dollar in sales is allocated to each of these categories?

Cost of Goods Sold:	_____
Labor Costs:	_____
All Other Costs:	_____
Profits:	_____
	\$1.00

Results. As shown in table 7, profit estimates were high but also varied across replicates ($F(3,336) = 4.22, p < .01$). Following the logic of fault trees (Fischhoff, Slovic and Lichtenstein 1978), there should be no effect of cueing labor on profit estimates because labor costs should be deducted entirely from total other costs. Overall, cueing labor reduced profit estimates ($F(1, 336) = 5.16, p = .02$), suggesting that participants did not spontaneously take labor costs fully into account when estimating profits. As expected, other costs did decline when labor was cued ($F(1, 336) = 138.78, p < .001$), although insufficiently to account for the full amount of labor cost estimates. Instead, a portion of labor costs was also deducted from CGS ($F(1, 336) = 6.53, p = .01$). Whereas CGS varied as a function of the store ($F(3, 336) = 4.43, p < .01$), other costs did not ($F(3, 336) = 1.14, p = .33$). As we also saw in experiments 3 and 4, consumers are more likely to infer quality differences than cost differences between stores.

TABLE 7: JUDGING CGS, OTHER COSTS AND PROFITS FOR STORES (OUT OF \$1)

Store	N	Labor Cued	CGS	Labor Cost	Other	Profit
Burdines	40	Yes	32.38 (17.81)	22.90 (11.81)	13.93 (7.62)	30.80 (15.22)
Burdines	44	No	41.57 (16.64)	--	27.70 (13.92)	30.73 (15.33)
Limited	42	Yes	32.29 (11.95)	23.36 (9.12)	16.90 (8.83)	27.45 (15.81)
Limited	44	No	36.68 (16.55)	--	31.45 (14.80)	31.86 (17.70)
Wal-Mart	40	Yes	38.05 (17.05)	22.20 (8.96)	13.80 (7.76)	25.95 (17.83)
Wal-Mart	44	No	39.45 (17.13)	--	29.52 (14.10)	31.02 (15.56)
Publix	47	Yes	41.62 (18.00)	24.28 (11.32)	14.21 (8.88)	19.89 (14.54)
Publix	43	No	45.47 (20.23)	--	28.51 (12.41)	26.02 (14.50)

Overall, participants' understanding of retail costs seemed malleable, but perceptions of profit were high and somewhat firm. Their judgments may best be described as quasi-rational. Labor costs were not fully taken into account, as indicated by the reduction in profits when labor was cued. Moreover, CGS estimates were reduced when labor was cued—suggesting a certain stickiness to profit perceptions.

Experiment 7: Generalization to the Population

Although the participants in the preceding experiment were relatively sophisticated vis-à-vis the general population, another overture to external validity was made by seeking replication through a probability sample of adults. Prior research suggests that fairness

estimates may vary across populations (Gorman and Kehr 1992). Although the survey format precluded exact replication, the survey questions were able to capture the basic intent of experiment 6.

As part of a larger survey, respondents were asked to answer a single question regarding profits and fair prices for several familiar store types and products. Table 8 describes the exact wording of the questions posed across respondents, the size of the sample for each question, and the mean responses.

Results. Overall, the results closely corresponded to the results from the laboratory study. Respondents showed some good but mostly bad intuitions. The perceived non-sale markup for clothing items at a department store approaches 100%, and respondents estimated a \$76.58 price for an item that had a \$40.00 CGS. On the other hand, the estimated fair price was \$58.16 and increased only nominally when the store's labor costs were cued. One speculation is that shoppers peg their fair price on the reduced price they commonly observe during sale periods (cf. Kahneman et al. 1986b), with the logic that the store should always sell at the reduced price if it can occasionally sell at the reduced price.

The questions concerning overall profitability again show a lack of appreciation for market dynamics and competition. Although estimates declined nominally with the average price of goods at each of three store types, overall profit estimates were extreme. For example, the profit earned by grocery stores is commonly cited at 1-2%.⁵ It appears that people do not spontaneously or fully appreciate retailer costs when judging fair prices. Profit is viewed as constituting a large proportion of the selling price. These results are consistent with experiments 3 and 4 in which profit dominated other attributions for the expected price differences at expensive and inexpensive stores.

⁵ Grocery stores reported 1.18% net profit after taxes in 1999-2000 (Food Marketing Institute Aug 2001).

TABLE 8: PRICE AND PROFIT PROBABILITY SAMPLE

Question	<i>N</i>	Mean	<i>SD</i>
If a fancy department store pays \$40 to a manufacturer for a woman's blouse, what would be a fair price for the store to charge you?	593	\$58.16	\$17.12
If a fancy department store pays \$40 to a manufacturer for a woman's blouse, what would be a fair price for the store to charge you, keeping in mind the store must cover such costs as rent and payroll?	524	\$62.94	\$21.87
If a fancy department store pays \$40 to a manufacturer for a woman's blouse, how much do you think the store charges you for the blouse when it is not on sale?	491	\$76.58	\$33.78
For each \$100 a fancy department store makes in sales, how many dollars do you think are left over in pure profit after the store has covered all its costs?	775	\$33.09	\$29.18
... for a discount store...	538	\$30.24	\$29.36
... for a grocery store...	671	\$27.52	\$20.52

The method used in experiments 6 and 7, which involved cueing cost categories and asking for cost and profit estimates, can be viewed as an additive decomposition task. The findings from the fault-tree literature suggest that additive decomposition can assist people in quantitative estimation—if the decomposition is a correct representation of the problem. In other words, the main benefit of additive algorithms is that they cue relevant information and provide a structure for the estimation task. Although unsurprising, the difficulty that people experience in generating correct algorithms is considerable. In the following studies we examine the effect of providing more detailed cost cues on profit estimates. In experiment 8

we assess the effect of broadening the number of cost categories; in experiment 9 the depth of a particular cost category is manipulated.

Experiment 8: Cueing Many Categories

Method. This experiment used a 2 (Cost Categories) x 2 (Sales Price) between-subjects design. Cost categories were manipulated at two levels; participants were given either a long list of cost categories or merely the CGS (pegged at \$20). Sales price was also manipulated at two levels; participants were either provided the sales price of a woman's blouse or not. Participants were asked to provide numerical estimates for costs (including a catch-all "other" category) and profit. The scenario for the long-list, price-given condition read as follows:

We are interested in your impressions of finances at a department store such as Burdines or Dillards. As an example, we ask you to consider a typical product sold at these stores, namely women's blouses. Listed below you will see the retail price of a particular blouse along with the cost paid by the store to the manufacturer for the item (known as the cost of goods sold). You will also see a general cost category that refers to all other costs the store needs to cover in order to stay in business, along with the category of profit. Please think about the categories that are not specified. Your task is to fill in the blank lines with dollar amounts. That is, given that the retail price is \$40 and it cost the store \$20 to purchase the blouse, how much of the difference do you estimate is typically allocated to the other costs and to profit? The sum of the costs and profit should equal the retail price.

Cost of Goods Sold: \$20.00

Labor Costs: _____

Rent Costs: _____

Maintenance Costs: _____
 Administrative Costs: _____
 All Other Costs: _____
 Profit: _____
 Retail Price: \$40.00

Results. Providing a long list of cost categories helped moderate profit perceptions (see table 9). Total costs increased when more costs were cued ($F(1, 58) = 6.89, p = .01$), indicating that consumers tend to ignore costs unless they are explicitly given. Absolute profit levels declined when a longer list of cost categories was cued, especially when the sales price was given ($F(1, 58) = 4.41, p = .04$). The same pattern of results is evident when profit is calculated as a percentage of price ($F(1, 58) = 13.39, p < .001$). The highest absolute and percentage profit levels occurred when participants were not given a price and few costs were cued; the lowest levels occurred when a \$40 sales price was given and many costs were cued. These results obtain in part because participants estimated the actual price to be higher than \$40 when the price was not explicit. As a result, absolute profit estimates were correspondingly higher when participants provided their own price estimate ($F(1, 58) = 4.70, p = .03$); in other words, participants believed that stores greatly markup prices (more than 100%) and attributed the higher price to higher profits rather than higher costs. Any adjustment for cueing costs was grossly insufficient. Moreover, profits appeared to be somewhat sticky, inasmuch as percentage profits were similarly high (30% and 32%) when few costs were cued.

TABLE 9: PROFIT AS A FUNCTION OF CUEING MANY CATEGORIES

Sales price	List of cost categories	N	Price \$	Other costs \$	Profit \$	Profit (as % of price)
Given (\$40)	Short	16	40.00	8.13	11.88	30
			(--)	(3.96)	(3.96)	(10)
Given (\$40)	Long	16	40.00	12.63	7.38	18
			(--)	(4.38)	(4.38)	(11)
Not given	Short	15	45.60	10.37	15.23	32
			(13.79)	(8.88)	(8.82)	(11)
Not given	Long	15	46.76	14.76	12.00	23
			(16.14)	(8.23)	(10.11)	(12)

Experiment 9: Cueing Detailed Costs

The previous study examined the effects of cueing a range of cost categories; this study focuses on depth within a category. Prior research on fault trees has found mixed effects of cueing detail within a category (e.g., Fischhoff, Slovic & Lichtenstein 1978; Van Schie and van der Pligt 1990). The present experiment used a three-group design. Cue type was manipulated at three levels; participants either received no specific cue, a labor cue, or a detailed labor cue. In addition to their cued cost category, participants were asked to estimate CGS, other costs, profit, and fairness. The detailed labor version scenario read as follows :

On the lines below, you see a simplified version of a major department store's income statement. Consider one dollar of revenue. What is your estimate of how much of each dollar in sales is allocated to each of these categories?

Cost of Goods Sold	_____
(money paid to suppliers for goods sold in the store)	
Cost of Labor	_____
<ul style="list-style-type: none"> • Salaries and commissions paid to full-time sales associates • Salaries and bonuses paid to managers • Salaries paid to other staff • All other labor costs 	
All Other Costs	_____
Profits	_____
Total	\$1.00

Results. As expected, labor estimates increased with additional detail in the labor cue ($F(1, 90) = 12.99, p < .001$). As table 10 indicates, cueing general labor reduced other cost estimates ($F(1, 134) = 22.16, p < .001$), as did the detailed labor cue ($F(1, 134) = 38.18, p < .001$). The general labor cue did not significantly reduce profits, compared to the no-cue control group, although the means are directional ($F(1, 134) = 1.54, p > .20$). However, a detailed labor cue did reduce profit estimates significantly ($F(1, 134) = 18.16, p < .001$). Mirroring profit changes, fairness judgments were unaffected by the general labor cue ($F < 1$) but were higher compared to the no-cue control group when additional detail was provided ($F(1, 133) = 6.38, p = .01$). These results suggest that participants may have partially but spontaneously taken labor into account when judging profits and fairness. Interestingly, cueing general labor also reduced CGS estimates compared to the control group ($F(1, 134) =$

5.86, $p = .02$), although the incremental effect of detail was only directional ($F(1, 134) = 2.56, p = .11$).

A trend analysis was also conducted. Labor cueing produced a linear effect on profit ($F(1, 134) = 18.16, p < .001$) and fairness ratings ($F(1, 133) = 6.38, p = .01$). In other words, profit estimates declined and fairness estimates rose as the labor cue became more explicit. Total costs also rose linearly with cueing ($F(1, 134) = 51.55, p < .001$), although not by the full amount of labor estimated. It is interesting to note that participants “borrowed” from both the “other” category (linear $F(1, 134) = 38.18, p < .001$; quadratic $F(1, 134) = 3.66, p = .06$) and CGS ($F(1, 134) = 5.38, p = .02$) in accounting for labor costs. The significant quadratic effect was due to less borrowing from CGS when detailed labor cues were provided. One interpretation of this latter result is that participants were finally more willing to extract the costs of labor from profit only when the details of labor costs to the firm were made very explicit.

TABLE 10: CUEING DETAILED COSTS

CUE	No Cue	Labor Cue	Detailed Labor Cue
N	45	45	47
CGS	36.4 (14.4)	28.9 (13.4)	33.8 (16.0)
Other Costs	22.1 (12.4)	13.3 (17.1)	10.7 (5.7)
Cued Costs	---	21.0 (10.3)	29.2 (11.5)
Profit	41.5 (18.6)	37.0 (17.2)	26.3 (15.3)
Fairness	3.8 (1.2)	4.0 (1.2)	4.4 (1.1)

These results demonstrate several points. First, as we have seen before, participants do not always respond appropriately to cueing of costs. If they had, estimates of CGS would not have declined and profits would have held steady when general labor was cued. On the other hand, participants were not completely intransigent. Detailed cueing prompted a more accurate reallocation of costs and profit, albeit not nearly to the extent necessary. Also, as reported in experiment 4, fairness judgments declined as profit estimates increased. In combination, it appears that buyers’ perceptions of costs, profits, and fairness are susceptible

to influence. However, the intervention required may not be realistic. It is unlikely that firms would attempt to cue costs to the extent used in this and the preceding experiment. Even if they were to do so, our results suggest that profit estimates are sticky and would remain stubbornly high.

Experiment 10: Not All Costs Are Equal

The research thus far is equivocal with regard to the question of spontaneity. On the one hand, the lack of the general labor cue effects in experiment 9 suggests that labor may be considered spontaneously—at least in the context of an explicit decomposition task. On the other hand, profit estimates can be moderated by an unrealistically heavy-handed version of the labor cue. Leaving aside the fact that consumers are rarely faced with a decomposition task and therefore are less likely to be mindful of the firm's costs in the real world, the question of spontaneity of non-labor costs remains. Of all non-CGS costs, labor intuitively seems most salient. In this study we examine the effects of different cost cues using a repeated-measures design. We selected three categories: labor (a large category that is intuitively salient), rent (a smaller cost category that seems unlikely to be spontaneously taken into account by participants), and markdowns (an important practice in store pricing that affects profits but also seems unlikely to be considered spontaneously). The experiment used a 3 (Cue: labor vs. rent vs. markdowns) x 2 (Repeated Judgment: before and after cueing) mixed design. The initial scenario read as follows:

We are interested in your impression of finances at a major department store. We would like your estimate of the proportion of department store revenue that goes to cover cost of good sold (money paid to suppliers for goods sold in the store), the proportion that goes to cover all other remaining costs, and how much is left as profit (after taxes). On the lines below, you see a simplified version of a major department store's income statement. Consider one dollar of store revenue. What is your estimate of how much of each dollar in sales is allocated to each of these categories?

Cost of Good Sold:	_____
All Other Costs:	_____
Profits:	_____
Total:	\$1.00

After estimating these categories, participants provided fairness ratings (on a 1-7 scale). The repeat judgment (in the rent cue condition) was elicited as follows:

One cost that stores have is the cost of property leases (rent paid on buildings leased for store use). You may or may not have taken property leases and other costs fully into account as part of the “All Other Cost” category in your previous estimate of a department store’s finances. On the lines below, you see another version of a major department store’s income statement. This statement breaks out property lease costs separately from all other costs. Consider one dollar of store revenue. What is your estimate of how much of each dollar in sales is allocated to each of these categories?

Other participants were prompted to consider “the cost of markdowns (price reductions used to move merchandise)” or “the cost of labor (salaries, commissions and bonuses paid to associates, managers and other staff).” After the rent, labor, or markdown cue, participants estimated CGS, the cued category, other costs, and profit, and then re-judged price fairness.

Results. As expected, all three of the cues increased estimates of non-CGS costs (non-zero t-tests are all significant, as reported in table 11). Estimates of CGS declined as a function of cost cue ($F(2, 56) = 2.90, p = .06$): participants (illogically) reduced CGS after labor and rent but not after markdown cueing. Regardless of cue, profit estimates were again quite high, ranging from 33–40%. Profit estimates declined as a function of cost cueing ($F(2, 56) = 4.19, p = .02$), with larger reductions observed after cueing markdown and rent than labor. Fairness ratings also rose after cueing markdowns and rent but not labor.

Considering the cues separately, labor showed the now-expected pattern. A labor cue produced no change in profit but did produce a decline in CGS. Thus, while acknowledging the labor cost, participants were more prone to reduce variable costs than profit. In the cases

of rent and markdowns, however, there was less borrowing from CGS and a consequent lowering of profit estimates. These results demonstrate that non-obvious categories are not generated spontaneously and that cueing of such costs does produce a reasonably rational reaction in terms of CGS and profit estimates. From a methodological perspective, the different results obtained across cues demonstrate that the results from the previous studies are not an artifact of merely providing participants with another category to estimate.

TABLE 11: CUEING LESS OBVIOUS CATEGORIES

CUE	N	Change in CGS	Change in other costs	Change in profit	Change in fairness
Labor	20	-6.3 (8.5) $t(19) = 3.31$ $p < .01$	+8.0 (9.1) $t(19) = 3.95$ $p < .01$	-1.7 (5.0) $t(19) = 1.53$ $p = .07$	+0.10 (0.64) $t(19) = 0.69$ $p = .25$
Rent	20	-2.4 (5.6) $t(19) = 1.91$ $p = .04$	+7.5 (7.7) $t(19) = 4.34$ $p < .01$	-5.1 (7.7) $t(19) = 2.91$ $p < .01$	+0.35 (0.81) $t(19) = 1.93$ $p = .03$
Mark- downs	19	-1.6 (5.0) $t(18) = 1.37$ $p = .09$	+11.8 (6.7) $t(18) = 7.67$ $p < .01$	-8.2 (7.9) $t(18) = 4.53$ $p < .01$	+0.42 (0.69) $t(18) = 2.65$ $p < .01$

In light of the preceding findings, the question still remains: why don't people spontaneously and fully consider costs when judging price fairness? First, we propose that people lack accurate mental models of the costs associated with a product and therefore are unable to generate these cost categories spontaneously. This explanation is borne out in research on algorithmic decomposition, which suggests that people experience difficulty in generating such algorithms in estimation tasks (MacGregor and Armstrong 1994). Moreover, research on hypothesis generation suggests that people stop too soon in generating hypotheses (Shaklee and Fischhoff 1982) and underestimate the other non-generated hypotheses (Gettys and Fisher 1979; Gettys, Mehle, and Fisher 1986). Second, even if cost categories do come to mind, people may have inaccurate perceptions of those costs, just as their perceptions of profit appear to be quite inaccurate. In essence, decomposing the task is

unlikely to improve overall estimation accuracy if the component tasks are no easier than the fair price estimate itself. When people base fair price judgments on costs and profits, sellers have an opportunity to improve price fairness perceptions by educating consumers regarding the costs associated with their products. The fairness results from the present experiment bear this out. Increases in perceived cost that lowered perceived profit also increased perceived fairness. A similar relationship between profit and fairness was observed in experiments 4 and 9. A reasonable question to ask, however, is whether this relationship between costs and fairness is robust across cost categories. We investigate this question in the following study.

Experiment 11: “Unfair” Costs

The principle of dual entitlement suggests that firms are entitled to raise prices in the face of increased costs. However, intuition and the popular press suggest that not all costs are deemed appropriate, and it would be folly to educate consumers about them. For example, educating consumers about the large bonuses paid to a firm’s senior executives seems unlikely to improve consumer perceptions of the fairness of a firm’s prices. Consumer reaction to other costs incurred routinely by firms is less obvious. We first ran a pilot study to examine the basic question of fair costs and then followed with a test of spontaneity.

Pilot Study. Participants were given a revenue breakdown for two firms that included cost of goods sold, labor (versus promotional) costs, all other costs, and profits. Labor (promotional) costs were 20% (40%) for Firm A and 40% (20%) for Firm B. Overall costs and net margin were held constant. Participants were then asked to assess the fairness of prices at the two firms.

Participants in the [labor / promotion] condition were told:

We are interested in your views on firm finances. As you know, firms make a profit from selling goods. Overall profit is a function of many factors, including costs. [For example, firms that make athletic gear must pay for the cost of goods sold (materials used to make their goods), labor costs (to pay

for labor in the manufacture of goods, etc.), and all other costs. / For example, firms that make athletic gear must pay for the cost of goods sold (materials used to make their goods), promotional costs (including advertising, promotions, and endorsements) and all other costs.] These costs can vary from firm to firm for reasons that may be under the firm's control or not. Profit (after taxes) is the money left over after firms have covered all of their costs.

Participants read the following information and then judged price fairness for each firm on a seven-point scale.

Please take a moment to look over finances for the following two firms selling athletic gear. In doing so, assume that overall revenue and total costs are equal for the two firms. In other words, the firms have the exact same net profit margin after taxes.

Firm	CGS	[Labor/ Promotional Costs]	All Other Costs	Net Profit Margin
Firm A	35%	20%	40%	5%
Firm B	35%	40%	20%	5%

Results showed that fairness ratings for the two firms varied as a function of whether labor or promotional costs were described ($F(1, 36) = 6.81, p = .01$). As indicated in table 12, a firm described as devoting 40% of its revenue to labor and 20% to "all other costs" was perceived as fairer than a firm that devoted 40% of its revenue to promotion and 20% to "all other costs." These results were obtained even though the net margin at each firm was equal and low (5%). Thus, not all costs are fair nor, as also shown in experiment 5, are equal profits equally fair.

TABLE 12: FAIRNESS AS A FUNCTION OF LABOR VERSUS PROMOTIONAL COSTS

Cost Cued	N	Firm A (20%)	Firm B (40%)
Labor	19	4.26 (1.33)	4.79 (1.18)
Promotions	19	4.84 (0.90)	4.26 (0.99)

These results prompted the main study, which employed a brand name familiar to most consumers to assess the question of spontaneity. Nike is an interesting example of a firm that manufactures a product with relatively low CGS and labor costs but relatively high promotional costs. Indeed, Nike has received a great deal of publicity regarding its expensive promotional and sponsorship deals and criticism for its Third World labor practices. Insofar as consumers naturally consider such issues, Nike should provide a strong test of spontaneity.

Method. The experiment used a 2 (Promotions Cue) x 2 (Measurement Order) between-subjects design. Participants either were cued or not cued about Nike's promotional spending. When cued, promotion appeared as a separate line item; in the uncued condition, there was no mention of promotional costs. Fairness was measured either before or after profit estimation. The stimulus scenario (from the cued, cost-first condition) read as follows:

As you know, Nike is a leading manufacturer of sports apparel, producing over 70 million pairs of shoes per year in its factories. We would like your estimate of the proportion of Nike's revenue that goes to cover material costs, the proportion that goes to cover promotional costs (including advertising and sponsorship) and the proportion that goes to cover all other

remaining costs, as well as how much is left as Nike's profit (before taxes).

On the lines below, you see a simplified breakdown of a Nike income statement. Consider one dollar of revenue. What is your estimate of how much of each dollar in sales is allocated to each of these categories?

Material Costs:	_____
Promotional Costs:	_____
All Other Costs:	_____
Profits:	_____
Total:	\$1.00

These participants then assessed the fairness of Nike prices on a seven-point scale.

Results. As expected, fairness was lower when costs were estimated first ($F(1, 75) = 5.73, p = .02$) but did not interact with cueing for any of the measures of concern (all $F < 1$). With regard to the measures of primary interest (see table 13), cueing promotions significantly reduced estimates of profit ($F(1, 76) = 6.81, p = .01$) and other costs ($F(1, 76) = 37.21, p < .001$) but had no effect on CGS estimates ($F < 1$). Thus, promotional costs—even for a heavily promoted brand such as Nike—may not be spontaneously considered in their entirety. Moreover, the promotional cue had no effect on fairness ratings ($F < 1$), although fairness was directionally *lower* when promotional costs were cued. Intuition and the notion of dual entitlement (as well as many of our previous results) suggest that perceived fairness should rise as profits decline due to higher costs. Clearly, price fairness judgments are guided by more than a simplistic view of entitlement. Controlling for profit margins, the route by which a firm achieves profit margins influences consumer perceptions of fairness. The present results indicate that consumers may be naïve not only about corporate profit and costs but also corporate strategy. Different—yet legitimate—methods of achieving competitive advantage are not viewed as equally fair.

TABLE 13: CUEING UNFAIR PROMOTION COSTS

Promotion	N	CGS	Promotion costs	Other costs	Profit	Fairness
Uncued	43	16.37 (10.91)	--	32.21 (20.31)	51.42 (23.11)	3.33 (1.52)
Cued	37	14.51 (10.18)	36.00 (20.43)	11.41 (7.00)	38.08 (21.75)	3.05 (0.97)

Taken together, these experiments suggest that consumers may possess inappropriate beliefs about the competitive marketplace. Profits are viewed as high and sticky; many costs appear to be largely ignored; and, some costs are viewed as fairer than others. As in the preceding sections, the implications are that consumers will be predisposed toward dissatisfaction with firms, and firms will be frustrated by consumer naiveté.

GOODS VERSUS SERVICES

Levitt (1981) has argued that, relative to manufacturers, providers of less tangible services find it difficult to convey long-term value of their offerings due to the lower salience of their benefits. We leave open the validity of Levitt's conclusion but raise a related point concerning the cost side of the value equation. As several of the preceding studies indicate, not all costs are factored into the final price of an offering. Because the perceived fairness of a price is determined by the costs incurred by the vendor (Thaler 1985), fairness will vary as a function of the salience of those costs. If so, the distinction between goods and services is noteworthy (see also Berry and Yadav 1996). A plausible assumption is that when assessing the costs to a manufacturer, the cost most salient to consumers is the variable material cost. Similarly, the most salient cost faced by retailers is the CGS (as our preceding studies show).

Thus, tangible costs may serve as a reference point on which consumers may anchor their assessment of fair price of a good. In contrast, a pure service offers no such anchor and, consequently, should prompt greater variation in the perceived fairness of its price, *ceteris paribus*. From the firm's perspective, it might be the case that, absent an anchor, service providers have more latitude to charge a price that corresponds to the value offered to the consumer. From a different perspective, consumers may be insensitive to the larceny involved in failing to pay for products and services that have few obvious tangible costs—as seen recently in the “sharing” of music via the Internet.

The true scope of this issue is too broad to be treated systematically here. Instead, we provide some illustrations of how the salience of CGS vis-à-vis other costs can affect perceptions of fairness in product versus service contexts.

Experiment 12: Where Can Profits Be Made?

We begin with a relatively simple illustration of differences in fair pricing for goods versus services. In this study, participants were asked to judge the fairness of a change in price of either the product or service component of an offering within a single firm. The context was the Sunday pricing schedule at an auto repair shop.

Method. The experiment used a five-group between-subjects design. In the first condition, participants read the following scenario and rated fairness on a seven-point scale:

Imagine that you live in a small town, where the only car repair shop in town is open on Monday to Saturday and closed otherwise. The auto mechanic (who owns and runs this car repair shop) charges a total of \$60 for his labor and \$60 for parts (based on the average car repair in this shop). You convince the mechanic that people often have car trouble on Sundays and would really find it attractive to find a repair shop that is open on Sunday. The mechanic is very reluctant but agrees. For this average car repair, he decides to charge a total of \$80 for his labor and \$60 for parts on Sunday. As a customer on Sunday, how fair do you think this pricing is?

A second group was provided with the identical scenario with the exception that the charges were reversed (i.e., \$60 for labor and \$80 for parts). A third group was given a combined price (\$140) rather than itemized prices. A fourth group provided fair prices in an open-ended format. A fifth group was presented with the three pricing alternatives and asked to choose the fairest.

Results. As shown in table 14, participants judged it fairer to increase the service price (i.e., mechanic's labor) rather than the goods price (i.e., parts) (between-subjects $F(1, 46) = 8.43, p < .01$). The markup on parts was deemed particularly unfair ($M = 3.13$ out of 7). This result runs counter to the principle of dual entitlement, which should allow sellers to pass on increased costs to buyers without retribution. Participants in the open-ended condition provided consistent responses; that is, they raised labor prices ($M = \$70.94, SD = 12.41$) more than parts prices ($M = \$62.50, SD = 6.83; F(1, 15) = 7.47, p = .02$). Even when the equivalence of the three pricing strategies was made transparent by providing all three options and asking for a choice, the majority of participants (15 out of 17, or 88%) chose to increase labor rather than parts or the combined total.

TABLE 14: JUDGING WEEKEND FAIR PRICES

Price increase applied to:	<i>N</i>	Fairness rating
Parts	16	3.13 (1.75)
Labor	17	5.12 (1.69)
Combined	16	4.25 (2.41)

Our interpretation of these results is that parts have a tangible CGS and that markups above the normal selling price create excess profits. The markup on parts was deemed as unfair, even though it is clear from the other responses that participants believed it was appropriate for the mechanic to receive extra compensation for work performed on Sunday.

It is difficult to rule out all alternative explanations using a single underlying scenario, and therefore we attempted to gather converging evidence in several additional studies that instantiated very different contexts. In the next study we examine the reverse case in which the seller's cost is not marked up but rather amortized over time.

Experiment 13: When Can Profits be Made?

This experiment examines the effect of a seller's sunk costs as a function of whether those costs are incurred in the form of a product or service. Research suggests that people may adapt to a previously incurred cost over time and therefore become less susceptible to the sunk-cost effect (Gourville and Soman 1998). The scenario, designed to be relevant to our participant population, required participants to assess the fair price of a good or service either within its immediate time of production or several months later. Specifically, participants were asked to estimate the fair price for note-taking (service) or a textbook (good) at the beginning or end of the semester (time perspective manipulation). Although all costs may be amortized over time, our hypothesis is that amortization will not occur equally for goods and services due to the more tangible costs of goods.

Method. The experiment was a 2 (Service / Good Frame) x 2 (Prospective / Retrospective) between-subjects design. The four scenarios read as follows:

Imagine that you sign up for a new elective class in the English department, entitled Business Themes in Popular Literature. As part of a class project, you are required to buy a paperback fiction book from a store like Barnes & Noble. Shortly after the first day, you drop the class. Assume that you do not want the book and that there is no buy-back for the book. Someone you meet is taking the class, has not yet bought the

book and offers to pay you for the book that you will not use. You agree. What do you think is a fair price? (Book/Before Condition)

Imagine that you just completed... As part of a class project, you were required... You took the class pass/fail and found that you could pass without reading the book, so you never did. Assume that you do not want the book and that there is no buy-back for the book. You meet someone who is taking the class next term for a grade and offers to pay you for the book that you did not use. You agree. What do you think is a fair price? (Book/After Condition)

Imagine that you sign up... Assume that it is a very small class so there is no TV replay. The instructor has no class attendance policy. You meet someone during the first class who cannot attend the class sessions. This person offers to pay you if you are willing to provide a copy of the class notes that you will take this term. You agree. What do you think is a fair price? (Notes/Before Condition)

Imagine that you just completed... Assume that it is a very small class so there is no TV replay. The instructor has no class attendance policy. You meet someone who has just signed up for the same class next term and cannot attend the class sessions. This person offers to pay you if you are willing to provide a copy of the class notes that you took in the previous term. You agree. What do you think is a fair price? (Notes/After Condition)

Results. An ANOVA on the fair price data in table 15 revealed a significant main effect of good versus service ($F(1, 109) = 4.86, p = .03$). However, the interaction with perspective was not significant ($F(1, 109) = 1.64, p = .20$). Because of differences in variance, simple effect comparisons were conducted. For books, time perspective had no effect on fair price estimates ($F < 1$); for notes, time perspective did influence fair price estimates ($F(1, 83) = 3.81, p = .05$). Specifically, fair price estimates were lower in retrospect than prospect for notes, suggesting that the fair price of a service is more sensitive to a shift in temporal perspective than is the fair price of a good.

Moreover, the key finding—and the driver of the price responses—can be found in the rationales provided by participants for their fair price estimates and in the prices associated with each rationale (see table 15). No participant in the good condition cited sunk cost as a rationale for setting price. Book prices were set almost exclusively by the estimated selling price of the book, with more participants specifying a used price in retrospect than prospect ($\chi^2(1) = 13.87, p < .005$). Based on participants who specified an actual price, the new and used price did not differ significantly ($F < 1$). This result is consistent with our hypothesis regarding CGS as an anchor for products and stands in sharp contrast to the service conditions in which rationales shifted dramatically as a function of time ($\chi^2(3) = 21.57, p < .005$). In prospect, participants tended to base the selling price on the cost of their labor, which led to a very high selling price. In retrospect, the price was significantly lower because the cost of labor was discounted. These participants, who viewed their labor as sunk, charged the lowest price—even though the results show that the (labor-based) value of these notes was quite high. Prices based on sunk cost were much lower than prices based on hours of labor ($F(1, 82) = 26.90, p < .001$). Overall, service prices appeared to be more susceptible to temporal framing than goods prices due to the latter's tangible reference point.

TABLE 15: FAIR PRICES FOR SERVICE VERSUS GOOD
AS A FUNCTION OF TIME PERSPECTIVE

Good/ Service	Time perspective	N	Rationales provided	Fair price [†]
Book (good)	After	40	Book used price – 27 Book original price – 12 Other – 1	29.3 (15.5) <i>n</i> = 12
Book (good)	Before	42	Book used price – 19 Book original price – 23 Other – 0	26.9 (17.8) <i>n</i> = 16
Notes (service)	After	68	Notes market price – 14 Sunk cost – 12 (31.6%) Time-based price – 10 (26.3%) Other – 32	46.1 (58.6) <i>n</i> = 61
Notes (service)	Before	45	Notes market price – 10 Sunk cost – 4 (11.4%) Time-based price – 19 (54.3%) Other – 12	67.6 (75.9) <i>n</i> = 27

Follow-up analysis of trimmed fair price estimates as a function of rationale:

Rationale	N	Fair price
Book discount price	19	29.30 (17.12)
Book original price	10	26.50 (15.85)
Notes market price	20	37.53 (35.16)
Sunk cost	13	15.38 (18.20)
Time-based price	15	91.40 (67.94)
Other	11	36.36 (48.02)

†Note: Ss who provided rationales frequently omitted fair price estimates (for example, by stating “same price that I paid for book originally” and failing to specify price). Because of missing data and variance heterogeneity, the ANOVA (reported on data trimmed at 3 *SD*) must be interpreted with caution. It is reported for completeness and is consistent with analysis of cognitive responses.

Experiment 14: Pricing Over Multiple Transactions

Our final illustration involves the pricing of multiple goods-versus-services transactions. Perceived fairness of a current transaction can be influenced by the price charged during a previous transaction. A typical test of dual entitlement involves repeat purchase within a product category in which prices rise from one period to another and the costs to vendor either rise or stay stable. However, consider the case of repeat payment for a single item—as when a product is rented rather than purchased—and neither the price nor the cost to the vendor change. For the vendor, profit is obtained from each transaction. Given enough transactions, the cumulative rental price will exceed the vendor’s purchase price of the good (CGS). We hypothesize a decline in the perceived fairness of the *product* rental price as the number of transactions increases. In contrast, consider multiple purchases of a single *service* that provides benefits that are similar to those obtained by the product. We

hypothesize that although the benefits provided by the good and service may be analogous, the situations are noncomparable due to the absence of a CGS for the latter. Consumers should expect to compensate the time/labor costs of a service provider, regardless of the number of iterations.

The present experiment compares the perceived fairness of a good versus service as a function of the number of purchases. The service condition may be viewed as a control against which the product rental condition is compared.

Method. The experiment used a 2 (Service/Good Frame) x 2 (Single/Multiple Transactions) mixed design. Participants were asked to judge fairness of prices charged to stay at a hostel for 1 night or 30 nights, where a portion of the nightly charge was designated for a service (cleaning) or a good (sleep-sack). The basic scenario read as follows:

Imagine that you are on a summer vacation in Europe. You will be spending most of this time with friends and family in Europe. You are also planning to stay at youth hostels in places you don't have friends or family. You think hostels are a good choice because they are relatively inexpensive compared to ordinary hotels and are frequented by other young people like yourself.

In the good frame, participants were then told:

You discover that there are two types of hostels in Europe. For Type I hostels, guests are asked to provide their own sleep-sack (a type of sheet) for their bed. For Type II hostels, the hostel provides sleep-sacks and guests pay an additional \$3 per night for rental. (This exactly covers the hostels' costs for the sleep-sacks themselves, since hostels are not-for-profit organizations and associated laundry services have been donated by a local organization.) The basic charge for staying at a hostel is \$15/night.

In the service frame, participants instead were told:

You discover that there are two types of hostels in Europe. For Type I hostels, guests are asked to clean up after themselves. For Type II hostels,

the hostel has a cleaning service and guests pay an additional \$3 per night toward this service. (This exactly covers the hostels' costs for the cleaning service, since hostels are not-for-profit organizations.) The basic charge for staying at a hostel is \$15/night.

To manipulate the number of transactions (shown here for the good conditions only), participants were told the following when estimating the fairness of a single transaction:

As it turns out, you will be staying at hostels for one night during your vacation. Therefore your hostel budget during this vacation would be:

Type I Hostel $\$15 / \text{night} \times 1 \text{ night} = \15

Type II Hostel $\$18 / \text{night} \times 1 \text{ night} = \18 (\$3 is for the sleep-sack)

When estimating fairness for 30 repeat transactions, the instructions read:

As it turns out, you will be staying at hostels for 30 nights during your vacation. Therefore your hostel budget during this vacation would be:

Type I hostel $\$15 / \text{night} \times 30 \text{ nights} = \450

Type II hostel $\$18 / \text{night} \times 30 \text{ nights} = \540 (\$90 is for the sleep-sack)

Participants judged price fairness for the Type I and Type II hostels on a 7-point scale.

We have argued that fair prices are “stickier” for goods than services due to the existence of a tangible CGS. If so, perceptions of fairness for the Type II Hostel should decline in the “good” frame from 1 to 30 nights, whereas perceptions of fairness for the service should remain constant.

Results. Table 16 reports the mean fairness scores. As expected, Type I hostels were judged equally fair across all conditions (because prices for these hostels did not include the additional good/service charge). A repeated measures analysis of both Type I and Type II hostel fairness ratings revealed a significant two-way interaction contrast ($F(1, 67) = 4.87, p = .03$) and a marginal effect for number of nights ($F(1, 67) = 3.49, p = .06$). The interaction can be understood by examining the difference in fairness ratings for Type I and Type II hostels (where the Type I hostel fairness rating serves as a control or baseline fairness

measure). Fairness ratings were identical across the number of nights for Type I and Type II hostels in the service frame; Type II hostel prices that included charges for cleaning services were judged slightly fairer than Type I hostel prices, regardless of whether the stay was for 1 night or 30 nights ($F < 1$). On the other hand, the pattern of fairness ratings in the good frame indicates that Type II hostel prices were judged equally fair (compared to Type I hostel prices) when the stay was for 1 night but significantly less fair when the stay was for 30 nights ($F(1, 32) = 11.69, p < .01$). In other words, fairness did not differ for Type I hostel prices (all $F < 1$) but did differ for Type II Hostel prices, as hypothesized ($F(1, 67) = 4.58, p = .04$).

TABLE 16: PRICE FAIRNESS FOR SERVICES VERSUS GOODS
OVER MULTIPLE TRANSACTIONS

Good/ service	Transaction	N	Type I fairness	Type II fairness	Difference Score
Sleep-sack (good)	Single (1 night)	17	5.82 (1.29)	6.18 (0.88)	0.35 (0.79)
Sleep-sack (good)	Multiple (30 nights)	17	6.06 (0.90)	5.53 (1.18)	-0.53 (0.72)
Cleaning (service)	Single (1 night)	19	5.89 (1.05)	6.11 (0.99)	0.21 (0.54)
Cleaning (service)	Multiple (30 nights)	18	6.17 (1.34)	6.44 (0.78)	0.28 (1.36)

Note: differences in **bold** are significantly different from zero ($p < .05$)

Experiment 14a: Holding the Transaction Constant

Direct comparisons of products and services are made difficult by the many dimensions on which they differ. Thus, we attempted to replicate experiment 14 in another context that controls for these differences by framing the same transaction as a good versus service.

Method. The experiment used a 2 (Service/Good Frame) x 2 (Single/Multiple Transactions) between-subjects design. Participants were asked to judge fairness of prices charged for entertaining a child once or 20 times, where the entertainment was framed as a service or a good. The scenario for a single transaction read as follows:

Imagine that you are a working mother with a young school-age child. During the next month, you will be working on an important project. The project requires you to work late at the office for one extra hour once during the month. You need to find some entertainment for your child during this time. You don't have any other options.

In the multiple transaction condition, the scenario was modified as follows:

Imagine that you are a working mother with a young school-age child. During the next month, you will be working on an important project. The project requires you to work late at the office for one extra hour each day (i.e., 20 times during the month). You need to find some entertainment for your child during this time. You don't have any other options.

All participants then read about a solution to their problem.

You discover a local company called "Fun4Kids." It is a local reputable firm that provides entertainment for children under adult supervision to ensure safety. In one of Fun4Kids' programs, an adult entertains your child with a board game. The program comes highly recommended—other parents who

use the program frequently say their child loves playing the game with the adult and never tires of it. Your child has tried the game and really loved it.

Participants in the service condition were then asked [with the multiple transaction amount shown in brackets]:

The charge for the adult's services is \$15, for a total price of \$15 [\$300] to entertain your child. How fair do you think this price is?

In the good condition, the same transaction was framed as rental of a good.

The charge for board game rental is \$15, for a total price of \$15 [\$300] to entertain your child. How fair do you think this price is?

Results. An ANOVA revealed a main effect of transaction ($F(1, 55) = 39.70, p < .001$) that was qualified by an interaction with frame ($F(1, 55) = 6.36, p = .02$). As the pattern of means in table 17 indicates, fairness ratings declined more from a single to multiple transactions for goods ($F(1, 28) = 48.58, p < .001$) than services ($F(1, 27) = 5.88, p = .02$). This result is consistent with the previous experiment that also illustrated limits on product, but not service, pricing. Note that in the present case the good condition subsumed the service condition, given that the good required not only rental but also the adult's labor. Thus, the low perceived fairness in the multiple-good condition seems particularly inappropriate.

TABLE 17: PRICE FAIRNESS FOR SERVICES VERSUS GOODS
OVER MULTIPLE TRANSACTIONS

Frame	Transaction	N	Fairness rating
Good	Single (1 use)	14	5.86 (1.17)
Good	Multiple (20 uses)	16	2.69 (1.30)
Service	Single (1 use)	14	5.36 (1.65)
Service	Multiple (30 uses)	15	4.00 (1.36)

Taken together, these experiments illustrate important differences in price fairness for goods versus services. Earlier studies showed that the fair price of a good is based largely on CGS. The present study shows that even when the price of a good is viewed as relatively fair, multiple “purchases” of the good are deemed unfair vis-à-vis multiple purchases of a service—even when expected value of the good and service to the consumer is high and equal. The repeated rental of a good provides the vendor with continuously increasing revenue but constant CGS constrains the fair rental price and profits over time.

CONCLUSION

Most prior research has examined price fairness at the transaction level. The present research is built on this tradition but also shows the importance of examining fairness across transactions and against multiple reference points. In a series of experiments, we examined three reference points—past prices, comparison prices, and costs—that lead consumers to systematically underestimate fair prices.

When “looking back” and assessing prices over time, consumers systematically underestimate the effects of inflation. Potential corrective strategies (i.e., providing explicit inflation rates, current prices, or historical data) were insufficient to correct for

underestimation. Indeed, the salience of recent price data appeared to exacerbate perceptions of unfairness arising from underestimation of inflation. When “looking across” and comparing prices, consumers infer price *un*fairness. When comparing store prices, consumers tend to attribute differences to profit rather than costs. Even after controlling for profit levels, consumers take into account *how* profits are made when comparing prices. Corrective efforts that explain price differences as a consequence of marketing strategy may be insufficient to improve fairness perceptions. In fact, certain marketing strategies (e.g., margin versus volume strategies) may be judged unfair even when beyond the store’s control. From a consumers’ perspective, price differences appear fair(est) only if they can be attributed to quality differences. However, when consumers “look inward” and assess costs, other cost categories besides cost of goods sold are likely to be ignored. Cueing other costs (e.g., more cost categories, more details about costs, and less obvious costs) may provide only limited relief to the vendor. Profit estimates appear to be sticky and high, and some costs (e.g., promotional costs) can stimulate feelings of unfairness. For vendors of goods, the news may be particularly bad. Due to the anchor associated with the consumer’s estimate of the CGS, the likelihood of extracting a price that approximates the good’s expected value to the consumer may be low in non-monopoly markets. Although services appear to have a little more pricing leeway, unfairness perceptions driven by cognitive reference points are nonetheless chronic among consumers.

The studies reported here have been wide-ranging but hardly comprehensive. A large opportunity exists to examine the issue of perceived price fairness in ways that go beyond both the present results and the pioneering findings on dual entitlement. The importance of understanding the reference points used by consumers to judge price fairness should be self-evident not only to marketers who develop pricing strategy but also to consumer researchers interested in purchase satisfaction.

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